Notice of Allowability	Application No.	Applicant(s)	
	10/803,439	PEREL ET AL.	
	Examiner	Art Unit	
	Bernard E. Souw	2881	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *Amendment 03/02/2006*.

2. ☒ The allowed claim(s) is/are *1-11,13-26,28-30 and 33-58*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

Amendment

1. The Amendment filed 03/02/2006 has been entered. The present Office Action is made with all the arguments being fully considered.

Claims 12, 27, 31 and 32 have been cancelled.

Claims 1-11, 13-26, 28-30 and 33-58 remain pending in this office action.

ALLOWANCE

2. Claims 1-11, 13-26, 28-30 and 33-58 are allowed.

The claims are subsequently renumbered to claims 1-54.

Reasons for Allowance

3. The following is an examiner's statement of reasons for allowance:

► A system or method for detecting particles on a work-piece in an ion implantation system, the ion implanter comprising a *rotary scan transport* for providing rotary motion to the work-piece and/or *spinning* the work-piece, and an in-situ monitoring system associated with the end station suitable for detecting particles on the one or more work-pieces during ion implantation, the monitoring system comprising: a light source for illuminating a portion of one of the work-pieces and two detectors symmetrically affixed on either side of the light source and both oriented toward the illuminated portion of the work-piece for capturing scattered light from opposite viewing angles of the illuminated

portion of the work-piece; as recited in independent claims 1, 21 and 43, is neither anticipated nor rendered obvious by any prior art.

► Claims 2-11, 13-20, 22-26, 28-30 and 33-52 are also allowed because of its/their dependencies, either directly or indirectly, upon claims 1, 21 or 43.

► A ion implantation system for implanting ions into one or more work-pieces, and for detecting particles on one or more work-pieces, comprising: a scan transport to the one or more work-pieces with respect to an ion beam; and an in-situ monitoring system suitable for detecting particles on the one or more work-pieces, comprising: *a laser light source conveyed by an optical fiber* and configured to provide a beam of illumination to a portion of the one or more work-pieces; and two detectors symmetrically affixed on either side of the light source and oriented toward the illuminated portion of the work-piece and configured to capture scattered light from opposite viewing angles of the illuminated portion of the one or more work-pieces; as recited in independent claim 53, is neither anticipated nor rendered obvious by any prior art.

► Claims 54-58 are also allowed because of its/their dependencies, either directly or indirectly, upon claim 53.

4. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Relevant Prior Art

5. This prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

(a) USPAT 6,919,957, issued to Nikoonahad et al. discloses a system or method for detecting particles on a work-piece in an ion implantation system, the ion implanter comprising a rotary scan transport for providing rotary motion to the work-piece, and an in-situ monitoring system comprising: a laser light source conveyed by an optical fiber and two detectors for capturing scattered light from the illuminated portion of the work-piece. However, Nikoonahad's two detectors are asymmetrically affixed on either side of the light source.

(b) USPAT 6,587,575 issued to Windham et al. discloses an in-situ monitoring system for detecting particles on a work-piece, comprising a laser light source conveyed by an optical fiber and two detectors for capturing scattered light from the illuminated portion of the work-piece. However, Windham's system does not include, or used in, an ion implantation system. Furthermore Windham's detectors are not symmetrically affixed on either side of the light source.

(c) USPAT 6,597,006 issued to McCord et al. discloses an in-situ monitoring system for detecting particles on a work-piece, comprising a laser light source conveyed by an optical fiber and two detectors for capturing scattered light from the illuminated portion of the work-piece in an ion implantation system, the detectors being symmetrically affixed on either side of the light source. However, McCord's does not teach to rotate or spin the work-piece.

(d) USPAT 6,888,627, USPAT 6,081,325, US-PGUB 2003/0227619 and US-PGPUB 2003/0206294, all four issued to Leslie et al.; USPAT 5,317,380 issued to Allemand; USPAT 4,889,998 issued to Hayano et al.; USPAT 3,749,500 issued to Carlson et al.; US-PGPUB 2005/0111727 issued to Emery; and US-PGPUB 2005/0018182 issued to Hyun et al.; all nine prior art references disclose an in-situ monitoring system for detecting particles on a work-piece, comprising a laser light source conveyed by an optical fiber and two detectors for capturing scattered light from the illuminated portion of the work-piece in an ion implantation system, the detectors being symmetrically affixed on either side of the light source. All nine references also teach to rotate the work-piece during irradiation. However, none of them uses the monitoring system in an ion implantation system.

(e) USPAT 6,078,366 issued to Tsai et al. and USPAT 4,208,126 issued to Cheo et al. disclose an in-situ monitoring system for detecting particles on a work-piece, comprising a laser light source and two detectors for capturing scattered light from the illuminated portion of the work-piece, the detectors being symmetrically affixed on either side of the light source. However, none of them uses the monitoring system in an ion implantation system, none of them rotates the work-piece, and none of them uses a fiberoptic to deliver the laser light to the work-piece.

(f) USPAT 6,271,916; USPAT 6,606,153, US-PGPUB 2002/0051130; and US-PGPUB 2004/0080741, all four issued to Marxer et al; and US-PGPUB 2005/0139789issued to Nagano et al; all five references disclose an in-situ monitoring system for detecting particles on a work-piece, comprising a laser light source conveyed by an optical fiber

and two detectors for capturing scattered light from the illuminated portion of the work-piece. However, their detectors are asymmetrically affixed on either side of the light source. Furthermore, none of them uses the monitoring system in an ion implantation system.

Communications

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bernard E Souw whose telephone number is 571 272 2482. The examiner can normally be reached on Monday thru Friday, 9:00 am to 5:00 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R Lee can be reached on 571 272 2477. The central fax phone number for the organization where this application or proceeding is assigned is 571 273 8300 for regular communications as well as for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571 272 5993.

bes
March 29,2006

JOHN R. LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800